NE085AC32ATEZ Rectifier

Uncompromised Advanced Technology to Simplify Your Network

The OmniOn Power™ NE085AC32ATEZ Single-phase Rectifier is designed to efficiently transform energy from commercial sources into the 32 Volt DC power needed for broadcast electronics.

Efficiency is market leading for diode protected, true hot pluggable, 32 Volt rectifiers.

The NE085AC32ATEZ offers a powerful combination of efficiency, network simplicity and reliability.

A True System Solution

NE085AC32ATEZ Rectifiers are part of the proven Infinity Power System specifically designed for wireless sites.

- Monitoring/control – the built in microprocessor controls and monitors all critical rectifier functions and communicates with the system controller using the built in Galaxy Protocol serial interface.
- Plug and Play – installation of the rectifier in a shelf connected to a compatible system controller initializes all set up parameters automatically. No adjustments are needed.
- Wide Output Range – the rectifier offers a wide output range to support voltages ranging from 24 to 32V_{DC} with output capacity ranging from 85 Amps to 101 Amps depending on output voltage.

Features and Advantages of the NE85AC32ATEZ

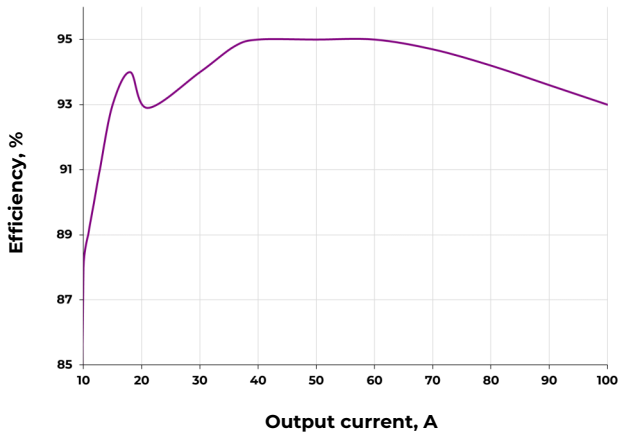
- Compact – 1RU form factor provides high power density 24 Watts / Cubic inch.
- Efficient – Peak efficiency of 95% occurs at less than 50% load matching sweet spots with customer use patterns.
- Flexibly provides 85 Amps of 32 Volt power from any worldwide electrical grid.
- Starts and runs at any AC voltage from 95 to 275 V_{AC} delivering 1200W at low range (100-120V_{AC}) and 2725W from high range feeds (200-240V_{AC}).
- Operates over a broad temperature range (-40°C through +75°C).
- Fail safe performance – hot insertion capabilities allow for rectifier replacement without system shutdown; soft start and inrush current protection prevent nuisance tripping of upstream breakers.
- Extended service life – parallel operation with automatic load sharing ensures that units are not unduly stressed.

Electrical Specifications

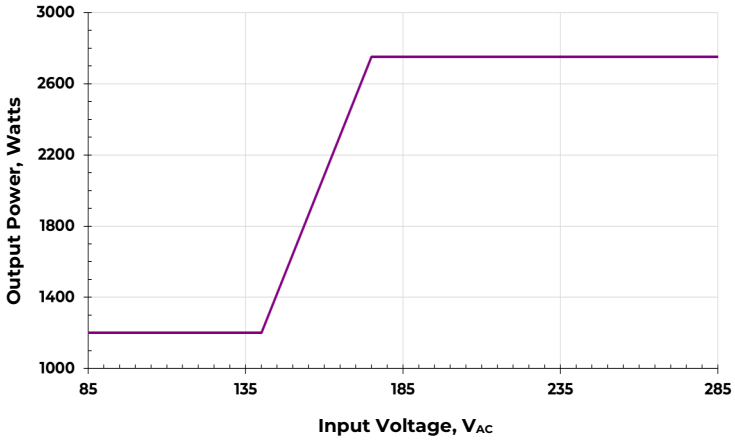
Input Voltage & Output Power	
Response to AC input voltage	Operates according to figure, turning on at all V_{IN} above $90V_{AC}$. Output power: 1200W < $140V_{AC}$ 2725W > $175V_{AC}$ Output power follows linear path between defined points. 300V max excursion voltage.
AC input current	15-12A @100-$120V_{AC}$ 15A @200-$240V_{AC}$
Power Factor	0.98@loads over 50%
THD	< 5% @loads over 50%
Holdover	10 milliseconds, with $V_{OUT\ final}$ >27V
Frequency	45-66Hz or DC

Output	
V_{OUT}	+24-$32V_{DC}$ range. Default = 32 V_{DC}
I_{OUT}	37A @ low input line 85A @ high input line
Regulation	± 5% w/controller
Ripple	$100mV_{RMS}$, $250mV_{p-p}$
Efficiency	Approaching 95%
Soft Start	Starts up into fully discharged batteries.

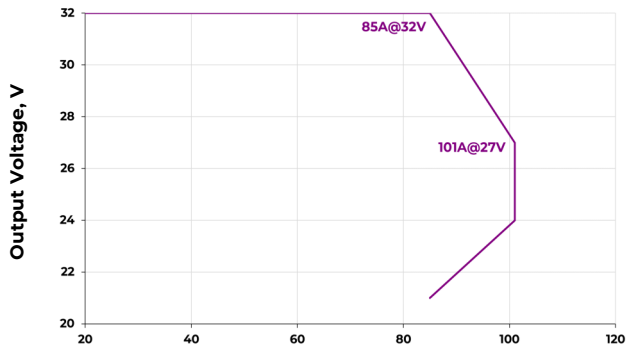
Characteristic Curves



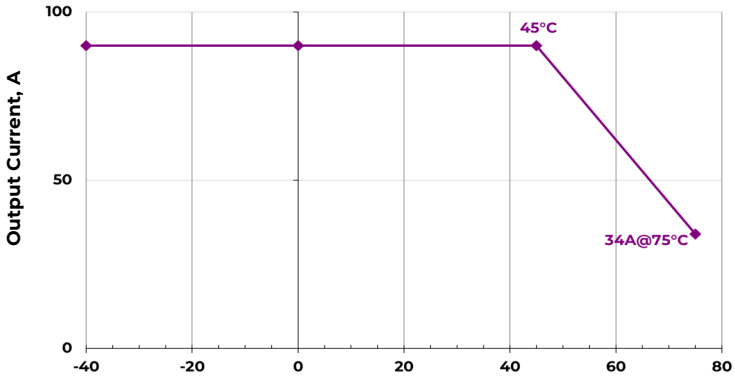
NE085AC32ATEZ Efficiency



Output Power vs Input Voltage



Output Voltage at 220V$_{AC}$



Rated Output Current (at V_{IN} > 175V$_{AC}$)

Environmental, Compliance & Physical

Operating Ambient Temperature Range	-40°C to +75°C (Output de-rates at 2%/°C beginning at 45°C)
Cooling Method	Front to back airflow with onboard temperature controlled fans
Operating Relative Humidity	0-95% (non-condensing) for use in a (Pollution Degree II) controlled environment
Electromagnetic Compatibility	FCC Part 15, EN 55022 (CISPR22), EN 55024, Level A, GR-1089
Lightning Surge	EN/IEC 61000-4-5 Level 4 (Error free), ANSI C62.41 Category B 100 kHz ring and 1.2/50µs combination waves (6kV damage free)
Agency Certifications* planned	UL1950, EN60950, CSA*234/950, NEBS GR-1089, GR-63-CORE
Heat Release	174 Watts or 594 BTU/hrs. at full load of 2725 Watts
Mean Time Between Failure (MTBF)	300k Hours @ 25°C per Telcordia SR-332, Method 1, Case 3
Height x Width x Depth, Weight, Packaged weight	1.63x5.23x13.85in (42x133x352mm), 5.05 lbs. (2.2 kg), 5.95 lbs. (2.7 kg)

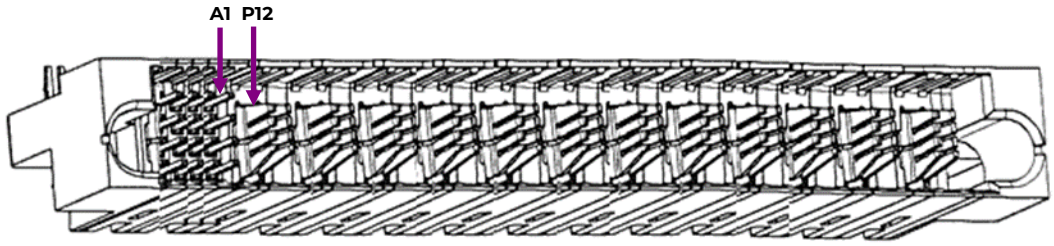
Power Unit and Power Unit Shelf Connectors

Power Unit PWB

A4	A3	A2	A1	Not Used	Not Used	32V RTN	32V RTN	32V RTN	32V RTN	+32V	+32V	+32V	PE/GND (ACEG)	L2/N	L1
B4	B3	B2	B1												
C4	C3	C2	C1												
D4	D3	D2	D1												
				P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1
4x Pins	4x Pins	4x Pins	4x Pins	Blade	Blade	Blade MFBL (long)	Blade MFBL (long)	Blade MFBL (long)	Blade MFBL (long)	Blade	Blade	Blade	Blade MFBL (long)	Blade	Blade

Outline Drawing

Shown looking into the rear of the power unit

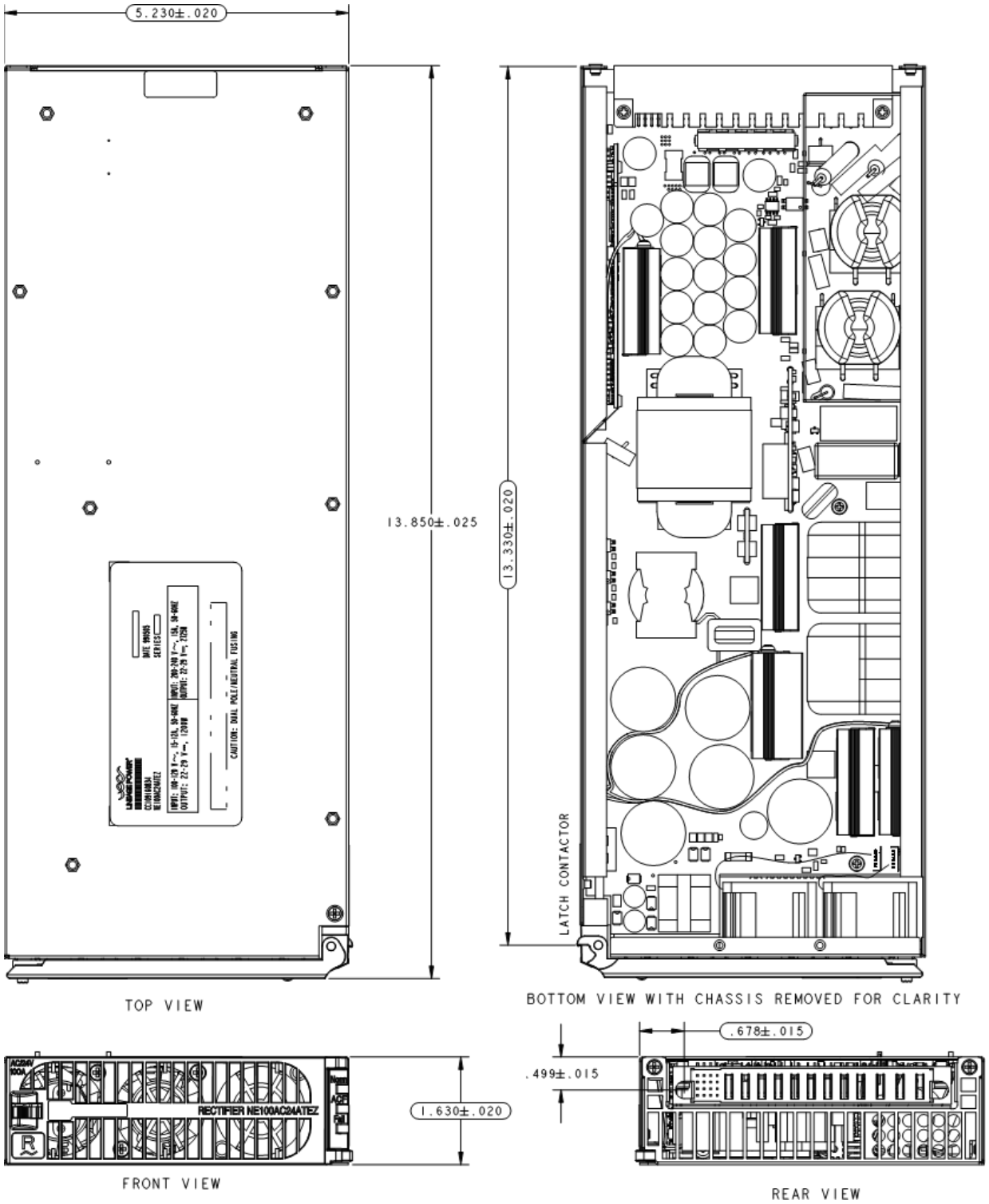


Power Unit Connector - AMP Multi-Beam XL (FCI # 51939-234LF or Tyco # 1900948-1)

Signals and Signal Pins

Pin	Length	Signal	Description	
A1	Long	RS-485-	non-Inverting RS-485 signal line (RS-485 A)	
B1	Long	RS-485+	Inverting RS-485 signal line (RS-485 B)	
C1	Long	Factory Programming	Reserved for Factory Programming - Open Circuit in the system shelf.	
D1	Long	Return	• Signal Return for PSIDn, SIDn, & Interlock • Power Units Connect Return to NE Common Return internally. • Power Units diode isolate the Return signals from each Power Slot.	
A2	Long	PSID0	Power Slot Address 0	• Logic 1 = Open Circuit (~3.3V). Logic 0 = Connection to the Return signal (~0.7V). • Left slot (front view) is Power Slot 1 and has address 000B. • Power Slot ID signals are connected directly to the Return signal at each Power Slot or left open.
B2	Long	PSID1	Power Slot Address 1	
C2	Long	PSID2	Power Slot Address 2	
D2	Long	SID3	Shelf Address 3	• Logic 1 = Connection to Return signal (~0.7V). Logic 0 = Open Circuit (~3.3V). • Shelf addresses 1 (00001B) through 31 (11111B) are valid. Shelf address 0 (00000B) is invalid. Address 31 (11111B) disables comm. fail LED • Power Unit Shelf ID signals connect to Shelf Return left
A3	Long	SID4	Shelf Address 4	
B3	Long	SID5	Shelf Address 5	
C3	Long	SID6	Shelf Address 6	
D3	Long	SID7	Shelf Address 7	
A4	Short	Interlock	• Disables power conversion within a Power Unit when not connected to the Return signal • Power Unit Shelves connect Interlock directly to the Return signal at each Power Slot.	
B4	Long	Factory Programming	Reserved for Factory Programming - Open Circuit in the system shelf.	
C4	Long			
D4	Long			

Physical Interface Dimensions



Change History (excludes grammar & clarifications)

Revision	Date	Description of the change
2.1	09/26/2023	Updated as per ABB template
2.2	10/24/2024	Updated as per OmniOn Power™ template

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